

Isolating the Application Program From the Physical Database Organization

When accessing hierarchical database(s), the application program structure is dependant on the physical database layout. This imposes application program maintenance when the physical database layout is changed. For example, if data element "1" is moved from segment "A" to segment "B" within database "X", then the application program must change its navigational path to access data element "1". The complexity of programming to access a hierarchical database increases educational requirements. The Data Base Management System access language logistics and database navigational rules are a burden that hinder programming productivity. DIFFAC (Data Independence Facility For Application Code) is an interface program between the application program and the database access language. Application programs interface with DIFFAC at the data element level. To isolate the application program from the physical database layout, DIFFAC transforms the application call to the Data Base Management System access language syntax. DIFFAC then performs the call. After the Data Base Management System returns control to DIFFAC, DIFFAC extracts the required data element(s) and transmits them back to the application program. Three types of tables are used by DIFFAC during the transformation. (1) The Segment Path Table A table describing the navigational path to locate the segment that contains the element. (2) The Data Element Table A table describing the attributes of the data element and the element location within the segment. (3) The Logical View Table A table describing the relationship between the element and the previous two tables. (relates the Data Element Table to the Segment Path Table). The three tables are maintained through an automated data dictionary. This allows physical reorganization of the data without impacting the application program. Using DIFFAC, the programmer is free to concentrate on the application functions and not be concerned with the Data Base Management System access language.